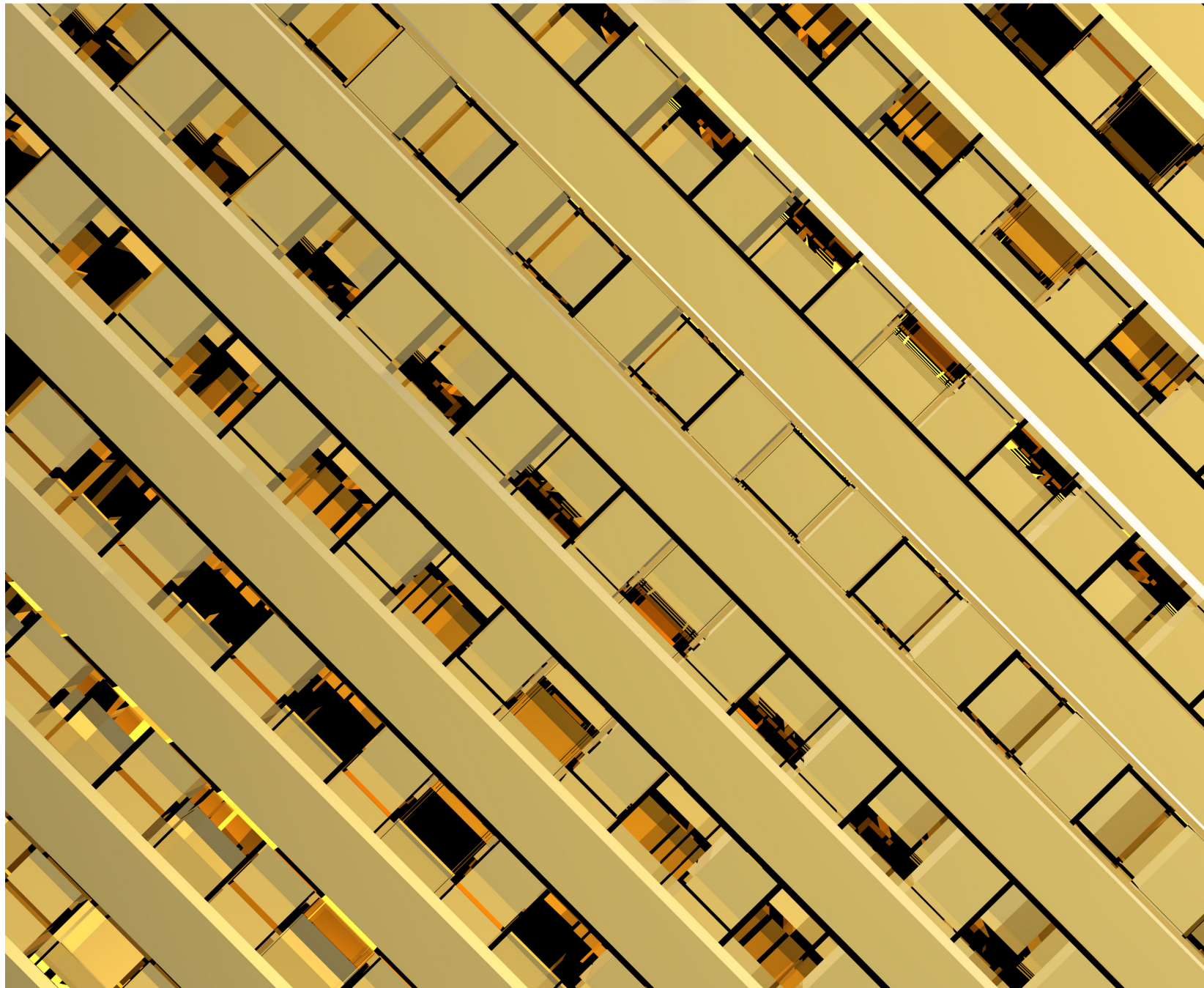


# Fluorsurfactants in Metal Finishing Chemicals



**Geocon Products**

Infinite Possibilities

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**THE SUPER STRONG CHEMISTRY WITH ACID AND ALKALINE STABILITY**

# FLUOROSURFACTANT IN METAL FINISHING

Fluorine is the most electronegative element known & it can substitute hydrogen in almost any organic compound. The carbon-fluorine bond is short super strong and stable in highly acid and alkaline pH condition.

**GeoconProducts** offers 3M Novec series Fluorosurfactant series FC 4430 Non ionic in metal finishing chemicals. The special properties of 3M FC 4430 is adding resulted to the lowering surface energy & keeping high chemical stability with its excellent oleophobic and hydrophobic properties.

Compared to all conventional surfactants & 3M Fluorosurfactant the benefits are as follows :

- Lowering surface tension in solvent & aqueous systems.
- Better effectiveness at much lower concentrations.
- Excellent stability in hostile environments, eg. strong acidic, alkaline or oxidative media.
- Good surface activity in organic media.

3M FC 4430 Fluorosurfactant assist in wetting on even contaminated metal surfaces and give penetrating effect on difficult-to-wet tight spaces of metal. Due to this super wetting property thus improves etching efficiency and reduces scale build-up.

3M FC 4430 Fluorosurfactant is highly stable in acid environments, even when heated and it can be also act as Fume Suppressants mainly in chrome plating.

By reducing drag-out and mist formation 3M Fluorosurfactant FC 4430 surpass prolong bath quality while reducing contamination to the work environment and adjacent plating-solution tanks.

FC 4430 is recommended in aggressive plating solutions including zinc, chrome, nickel plating & also formulation in corrosion inhibitors and heavy cleaning chemicals and degreasers.

# Typical Physical Properties

(Not for specification purposes)

Properties	Typical Values
Appearance	Clear, yellow viscous liquid
Specific gravity	1.14 g/cc
Flash point (Setaflash closed cup)	>93°C (200°F)
pH (of 1% aqueous solution)	4.5
Viscosity (cP @ 25°C / 77°F)	2,000 - 6,000
Solubility in water	Dispersible in all proportions
Tg	< 0°C
Type	Non-ionic
Composition	90% polymeric fluorochemical actives
	8% non-fluorochemical actives
	2% co-solvent (DPM, toluene)
Freeze/thaw stability	Protect from freezing*

\* If 3M fluorosurfactant FC-4430 freezes, warm it to >86°F (>30°C) until fluid. Freezing will not change physical properties or adversely affect performance.

## Solubility

Solvent	Solvent grams of FC-4430/100 grams of solvent
Butyl cellulose	>25
Toluene	>35
Methyl ethyl ketone	>25
Dimethylformamide	>25
Isopropyl alcohol	>25
Methanol	>25
Dowanol™ PM	>25
Texanol™	>25
Proglyde™ DMM	>25
N-methyl pyrrolidone	>25
Mineral spirits	<1

## Interfacial Surface Tensions

Surfactant	Interfacial Tension Light Phase: Heptane (dynes/cm)			Interfacial Tension Light Phase: Cyclohexane (dynes/cm)		
	200 ppm	0.5%	1.0%	200 ppm	0.5%	1.0%
Control		43.7			51.2	
FC-4430	3.5	2.2		2.5	1.5	
SDS <sup>1</sup>	15.4	6.1	5.8	12.9	5	4.9
SDBS <sup>2</sup>	15.9	4.1	3.7	13.5	2.9	2.6
Silicone Dispersant	14.4	10.9	10.5	11.7	8.8	8.8

<sup>1</sup>Sodium Dodecyl Sulfate

<sup>2</sup>Sodium Dodecyl Benzene Sulfonate



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NOTE: Although the data supplied above is believed to be accurate, each user is advised to make an independent determination as to whether the described product is appropriate for a particular use or application, whether such use will comply with all applicable laws or regulations, and whether such use will infringe the intellectual property rights of third parties.